



United States Patent [19]
Strickland et al.

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[54] **CYTOPROTECTIVE OLIGOSACCHARIDE
FROM ALOE PREVENTING DAMAGE TO
THE SKIN IMMUNE SYSTEM BY UV
RADIATION**

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C07G 3/00

[52] **U.S. Cl.** **514/54;** 514/885; 536/123;
536/123.1; 536/124; 536/127; 536/128

[58] **Field of Search** 514/54, 885; 536/123,
536/123.1, 124, 127, 128; 435/96, 99

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[57] **ABSTRACT**

The present invention relates to a glucose-rich, mannose-
containing oligosaccharide described herein has a molecular
weight of approximately 1,000–5,000 daltons and is sepa-
rated from interfering aloe components. The oligosaccharide
inhibits loss of skin immunocompetency which is induced
by ultraviolet irradiation. The oligosaccharide is obtained by
cellulase cleavage of a precursor block polysaccharide of
Aloe (FIG. 1) and has about 75% glucose, about 25%
mannose and trace galactose. The precursor polysaccharide
has a molecular weight of >2,000,000 daltons, is about 73%
hexose with a total hexose to reducing sugar ratio of about
23:1. This polysaccharide is about 7% glucose, about 85%
mannose and about 4% galactose. Also described is a
method for obtaining an immunoprotective oligosaccharide
by treating an Aloe extract with cellulase at a concentration
of less than about 2 grams per 215 liters.

6 Claims, 12 Drawing Sheets